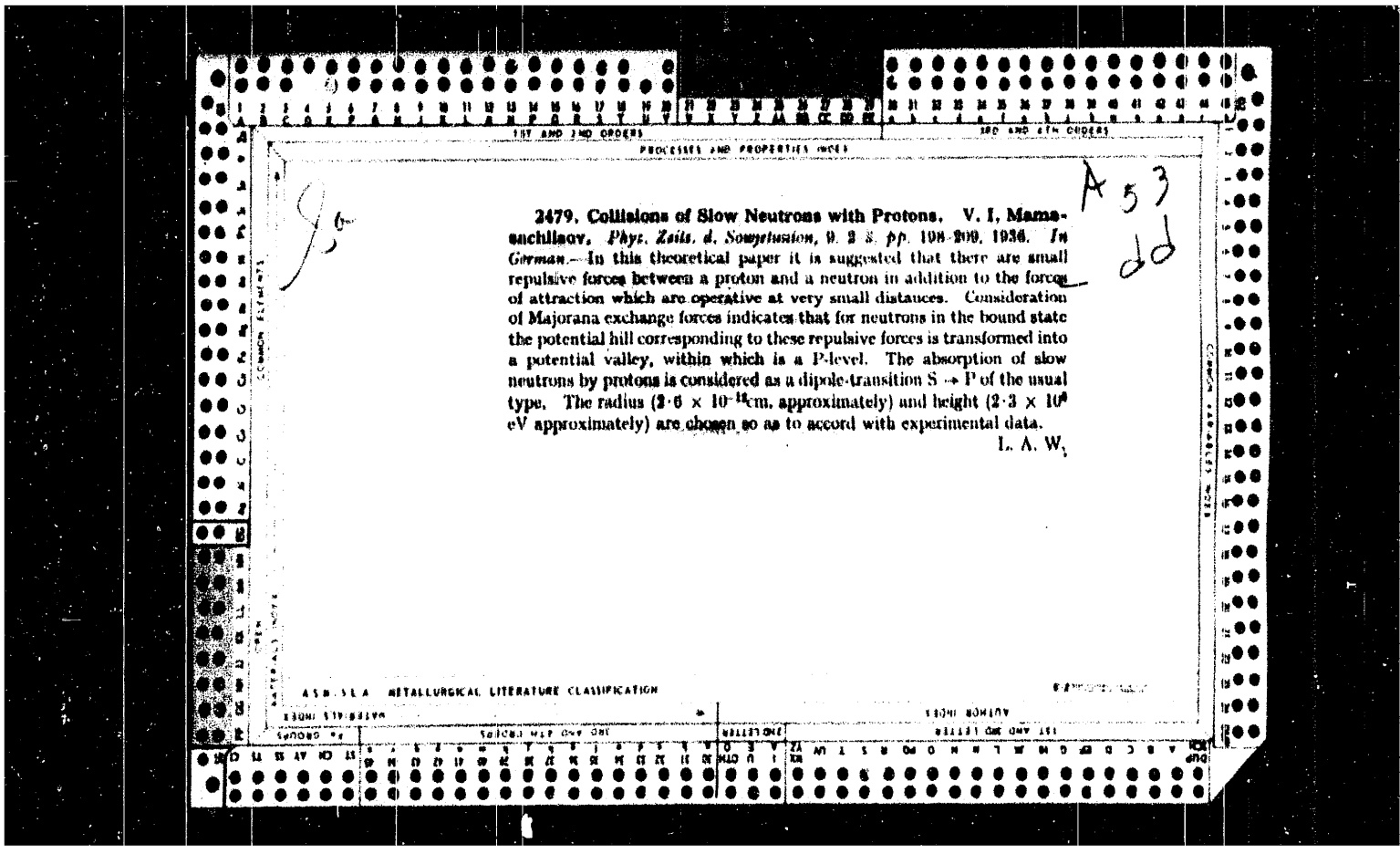


1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

A 53

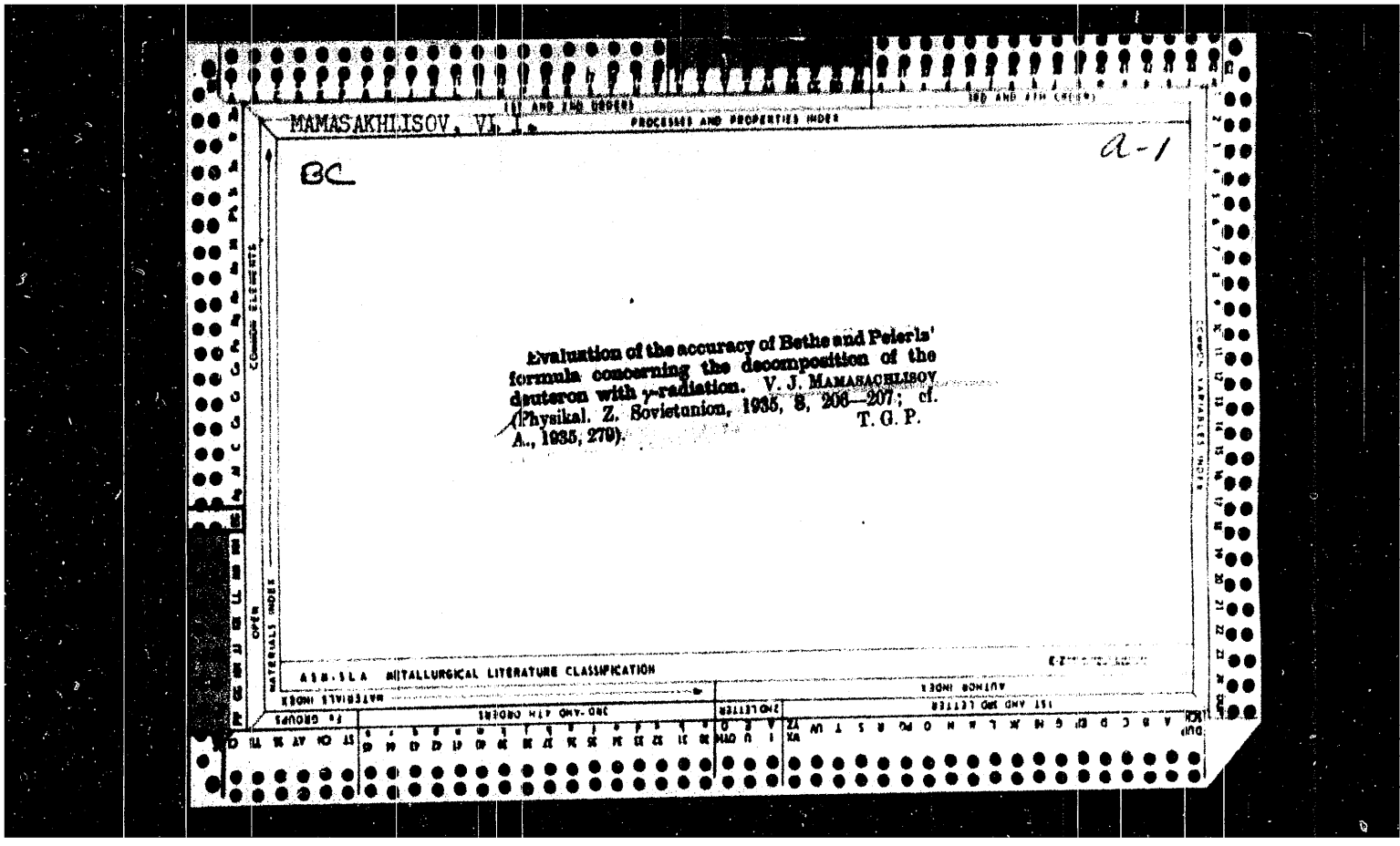
dd

2479. Collisions of Slow Neutrons with Protons. V. I, Mamasachlisov. *Phys. Zeits. d. Sowjetunion*, 9. 2 S. *pp.* 198-209. 1936. *In German.*—In this theoretical paper it is suggested that there are small repulsive forces between a proton and a neutron in addition to the forces of attraction which are operative at very small distances. Consideration of Majorana exchange forces indicates that for neutrons in the bound state the potential hill corresponding to these repulsive forces is transformed into a potential valley, within which is a P-level. The absorption of slow neutrons by protons is considered as a dipole-transition S → P of the usual type. The radius ($2 \cdot 6 \times 10^{-13}$cm. approximately) and height ($2 \cdot 3 \times 10^{6}$ eV approximately) are chosen so as to accord with experimental data.

L. A. W.

A.S.M.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

AUTHOR INDEX



MAMASAKHLISOV, V.I.

a-1

BC

Evaluation of the accuracy of Bethe and Peierls' formula concerning the decomposition of the deuteron with γ-radiation. V. J. MAMASACHLISOV (Physikal. Z. Sovietunion, 1935, 8, 206—207; cf. A., 1935, 270). T. G. P.

G.I., kandidat tekhnicheskikh nauk (Tbilisi); PODVYAZKIN, K.A., kandidat tekhnicheskikh nauk (Leningrad); POVARENKO, S.D., dotsent (Leningrad); ZELEVICH, P.M., inzhener.

"General course in railroad engineering." K.M. Dobrosel'skii and others. Reviewed by N.M. Roinishvili and others. Zel.dor.transp. 39 no.4:90-93 Ap '57. (MLRA 10:5)

(Railroad engineering)
(Dobrosel'skii, K.M.)
(Nikolaev, I.I.) (Chernyshev, M.A.)
(Shilovskii, V.A.)

MAMASAKHLISOV, G.I., kandidat tekhnicheskikh nauk.

Determining unloading norms by engineering plan. Zhel. dor. transp. 38 no.9:79-80 S '56. (MLRA 9:10)

(Railroads--Freight) (Loading and unloading)

MAMASAKHLISOV, G. I. Engineer

"Influence of the Elements of Operation on the Turnover of a Car." Thesis for degree of Cand. Technical Sci. Sub 16 Mar 49, Moscow Order of Lenin Inst of Railroad Engineers imeni I. V. Stalin

Summary 82, 18 Dec 52, Dissertations Presented For Degrees in Science and Engineering in Moscow in 1949. From Vechernyaya Moskva, Jan-Dec 1949.

BODAZHKOVA, K. N.; ZHUKOVA N. M.; MAMAS', N. N.

Use of dieldrin for preparing some agricultural crops. Trudy LSGMI 67:336-341 '62. (MIRA 15:7)

1. Kafedra gigiyeny pitaniya s klinikoy alimentarnykh zabolevaniy Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta (zav. kafedroy - prof. Z. M. Agranovskiy).

(DIELDRIN--TOXICOLOGY) (POTATOES)

MAMAS', N. N., Cand Med Sci (diss) -- "Investigation of the sources of microbal semination of milk as a basis for standardizing its bacteriological indexes". Leningrad, 1960. 15 pp (Min Health RSFSR, Leningrad Sanitary-Hygiene Med Inst), 300 copies (KL, No 15, 1960, 140)

MAMAS', N.N.

Principal methods for improving sanitary and bacteriological properties of milk on dairy and cattle farms. Trudy LSGMI no.47:185-200 '59. (MIRA 12:9)

1. Kafedra gigiyeny pitaniya Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta (zav. kafedroy - dotsent Z.M.Agranovskiy) i Kafedra mikrobiologii (zav.kafedroy - professor M.N.Fisher).
(MILK - microbiology)

MAMAS', N. N.

"Basic means of raising the sanitary indices of milk at various stages of its production and initial processing."

report submitted at the 13th All-Union Congress of Hygienists, Epidimologists and Infectionists, 1959.

STOYEV, K.D.; MAMAROV, P.T.; BENCHEV, I.B.

Sugars and free amino acids during the maturation and dormancy of the grapevine. Fiziol. rast 7 no.2:145-150 '60. (MIRA 14:5)

1. Scientific Research Institute of Viticulture and Wine Making Plevna, Bolgaria.
(Grapes) (Sugars) (Amino acids)

SOV/20-125-6-54/61

Influence of Fertilizers on the Composition of the Ascending Sap Stream in the Vine

PRESENTED: January 28, 1959, by A. L. Kursanov, Academician

SUBMITTED: August 30, 1958

Card 4/4

Influence of Fertilizers on the Composition of the Ascending Sap Stream in the Vine

by the roots of nitrogen is effected rapidly, whereas its conversion into amino acids takes place in a certain sequence: at first alanine, and eventually dicarboxylic acids are synthesized. The synthesis of the basic and aromatic amino acids is said to take place much later by means of trans-amination (Ref 17). Phosphorus fertilization probably also favored the increase in the amino acid content in the fertilized vines (Ref 18). The investigations by the authors have shown ammonium nitrogen to be taken up by the vine roots in an organic form. From there it is transported upwards into the individual organs in the form of various amino acids. The most intensive conversion of inorganic nitrogen into amino acids takes place during the first days after its application to the soil. There are 2 figures, 1 table, and 18 references, 12 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy institut vinogradarstva i vinodeliya, g. Pleven, Bolgariya (Scientific Research Institute of Viniculture and Pressing, City of Pleven (Bulgaria))

Influence of Fertilizers on the Composition of the Ascending Sap Stream in the Vine

sugar types were studied in accordance with reference 10. Said influence was determined on the 2nd, 10th, and 44th days after fertilizer application. Figures 1 and 2 present the determination results. In figure 1 no difference, with regard to sugar contents, can be noticed between plants of the fertilized and unfertilized plots. However, quantitative methods revealed a much higher sugar content on the 2nd day after fertilization than could be observed in the case of unfertilized plots. This difference was equalized by the 10th day (Table 1). Most probably the sugar content is the result of the action of superphosphate phosphorus, and of the more intensive starch decomposition in the vine roots (Refs 11-14). Figure 2 shows the changes in the amino acid content with the influence of fertilization (after 2 days): 9 and 14 acids, respectively, in individual vines, as against 7-8 acids in the controls. The amino acid stains in the saps of fertilized vines were larger in the chromatograms. On the 10th and 44th days the differences had disappeared. From this the authors conclude that the uptake and conversion of mineral substances occurs most energetically during the first days following fertilizer application to the soil (analogous to references 16, 17). Thus the assimilation

17(1)

AUTHORS: Stoyev, K. D., Mamarov, P. T., Benchev, I. B.

SOV/20-125-6-42/64

TITLE: Influence of Fertilizers on the Composition of the Ascending Sap Stream in the Vine (Vliyaniye udobreniy na sostav vos-khodyashchego toka vinogradnoy lozy)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 6, pp 1367-1370 (USSR)

ABSTRACT: According to the data presented in scientific publications, there is a difference in the uptake by day and the uptake by night of mineral substances by the plant (Refs 1,2): There are certain periods within which there is a rhythm of this uptake (Ref 4). Said difference also concerns the roots during vegetation. It is connected with the plant's passing through its growth and development stages (Refs 6,7). The authors tried to determine the influence of fertilizers on the sugar and amino acid contents of the liquid exudated on the "weeping" of the vine. For this purpose the saps were collected of N-, P-, and K-fertilized as well as of unfertilized vines (Zarchin variety, grafted upon Montikola). The saps, in a five-fold vacuum concentration, were chromatographed (Refs 8,9), and the

Card 1/4

STOYEV, K.D.; MAMAROV, P.T.; HENCHEV, I.B.

Chromatographic analysis of sugars and free amino acids of grapevine sap [with summary in English]. Fiziol. rast. 6 no.4:408-414 Jl-Ag '59. (MIRA 12:10)

1. Scientific Research Institute of Viticulture and Winemaking, Pleven.
(Grapes) (Amino acids) (Sugars)

MAMAROV, P.; LILOV, D.

Increasing the percentage of the first class vines by stimulation during the grafting of the Mavrud sort. p. 125

Bulgarska akademiia na naukite. Institut po biologia "Metodi Popov."
IZVESTIIA, BULLETIN. Sofia, Bulgaria, Vol. 8, 1958

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 12,
December 1959
Uncl.

MAMARDASHVILI, G.M.

Transformation of whole numbers from one number system to another. Trudy GPI no.5:53-56 '63.

Some features of a binary calculus system. Ibid.:57-60

Transformation of whole numbers from one number system to another using coefficients and tables. Ibid.:61-68 (MIRA 17:9)

NAMARDASHVILI, G.M.

Correlation between systems and numbers. Trudy G[illegible] [Gruz.] no.4: 133-134 '6[illegible] (MIRA 1[illegible])

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001032000028-6

MAMRASULEV, M.S.; KOZ'MOVA, R., red.

[Irrigation in Uzbekistan] Oroshenie v Uzbekistane. Tashkent, Uzbekistan, 19--. 45 p. [In Uzbek]
(MIRA 17:11)

MAMANTOV, V.

"Weed Killing on Railroads. Tr. From the Russian", P. 147, (KOZLEKEDESTUDOMANYI SZEMLE, Vol. 4, No. 4, Apr. 1954, Budapest, Hungary)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3, No. 12, Dec. 1954, Uncl.

MAMANOVA, Kh.Ye.

Iso- and heterohemagglutination under normal conditions and in typhoid fever. Zdrav. Kazakh. 21 no. 3:52-54 '61. (MIRA 14:4)

1. Iz kafedry patologicheskoy fiziologii (zav. - professor O.S. Glozman) Kazakhskogo meditsinskogo instituta.
(BLOOD--AGGLUTINATION) (TYPHOID FEVER)

LYUTOVICH, A.S.; SINYUKOV, V.A.; MAMANOV, O.A.; SUVOROV, A.N.; GUDOSHNIKOV, A.V.

Measuring the specific resistance of high-resistance silicon. Dokl. AN Uz.SSR. 21 no.3:14-17 '64.

(MIRA 17:4)

1. Fiziko-tekhnicheskiy institut AN UzSSR. Submitted July 22, 1963.

ACCESSION NR: AP4044797

ASSOCIATION: Fiziko-tekhnicheskiy Institut AN UzSSR(Institute of Physics and Technology, AN Uz SSR)

SUBMITTED: 04Dec63 ENCL: 01

SUB CODE: IC NO REF SOV: 002 OTHER: 001

Card 2/3

ACCESSION NR: AP4044797 S/0166/64/000/003/0074/0075

AUTHOR: Lyutovich, A. S., Sinyukov, V. A., Mamanov, O. A., Suvorov, A. N., Gudoshnikov, A. V.

TITLE: Controlling the quality of polycrystalline silicon by measuring its electrophysical parameters

SOURCE: AN UzSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, no. 3, 1964, 74-75

TOPIC TAGS: polycrystal, monocrystal, electrophysical parameter, conductivity, charge carrier, resistivity, silicon, polycrystalline silicon

ABSTRACT: The paper describes the quality control of polycrystalline silicon by measurement of electrophysical parameters such as the type of conductivity, specific resistance, concentration of charge carriers and their mobility. The method described for polycrystals is, in principle, the same as the analogous control technique for monocrystals. Studies have shown, however, that the specific resistance of polycrystals should be measured at higher current densities than with monocrystals. Figure 1 in the Enclosure shows some of the experimental results. Orig. art. has: 2 figures.

Card 1/3

ACCESSION NR: AP4002547

where H - magnetic field, ρ - resistivity, d - ingot diameter, S - cross-section area, I - current in ma. The experiment was performed with bars 3-25 cm long and 1-2.5 cm in diameter. After Hall emf measurements on the complete specimen were completed several smaller specimens were cut out and the measurements repeated. The results show the possibility of Hall measurements directly on the whole specimen, without any need for cutouts or incisions (which in turn show the expected relationship between p, n and μ). The dislocation distribution shows large dislocation densities at the start of the ingot, close to the nucleus, gradually decreasing toward the end. Orig. art. has: 3 formulas and 3 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UzSSR (Physical-Technical Institute AN UzSSR)

SUBMITTED: 30Jul63 DATE ACQ: 07Jan64 ENCL: 00

SUB CODE: PH NO REF SOV: 001 OTHER: 002

Card 2/2

ACCESSION NR: AP4002547 S/0166/63/000/005/0090/0094

AUTHORS: Lyutovich, A. S.; Sinyukov, V. A.; Mamanov, O. A.; Suvorov, A. N.; Gudoshnikov, A. V.

TITLE: Investigation of purity and structural perfection of monocrystalline silicon by measuring Hall effect in whole ingots

SOURCE: AN UzSSR. Izvestiya. Seriya fiziko-matem. nauk, no. 5, 1963, 90-94

TOPIC TAGS: silicon, monocrystalline silicon, silicon purity measurement, Hall effect

ABSTRACT: The crystal purity in single crystal silicon has been investigated by measuring the Hall effect in whole ingots. The study is based on the expression for the mobility μ of the charge carriers as a function of the Hall emf V_x, thus

$$\mu = \frac{V_x S}{HI\rho d},$$

Card 1/2

MAMANIN, L. F.

Filters and Filtration

Alkalinization of soils as a measure against filtration from water basins in the central black-earth provinces. Gidr. i mel. 5 No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953. Unclassified.

MAMANINA, L. F.

"The Effect of Isolating Interlayers upon the Height of Capillary Rise of Water in Heavy Loams,"

SO: Pedology, No. 1, 1944.

KHUNDADZE, Georgiy Romanovich; TSANAVA, Georgiy Melitonovich; GOROZIANI, Chichiko Vasil'yevich; MAMAMTAVRISHVILI, Otar Grigor'yevich.

[Anesthesiology; general part] [Anesteziologiia; obshchaia chast'. Tsodna] 1964. 430 p. [In Georgian]
(MIRA 18:8)

KHUNDADZE, G.R.; TSANAVA, G.M.; GOROZYANI, Ch.V.; MAMAMTAVRISHVILI, O.G.

Single-stage bronchoscopy and bronchography under anesthesia.
Khirurgiia 36 no.7:89-92 Je '60. (MIRA 13:12)
(BRONCHI—RADIOGRAPHY) (BRONCHOSCOPY)

MAMAMTAVRISHVILI, O. G., Cand Med Sci -- (diss) "Materials on the study of changes in hemodynamics and respiration in the operational period." Tbilisi, Tbilisi State Univ Publishing House, 1960. 20 pp; (Tbilisi State Medical Inst); 150 copies; free; (KL, 23-60, 128)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001032000028-6

KVALIASHVILI, A.A.; MAMAMTAVRISHVILI, D.G.; TATISHVILI, M.V.

Spontaneous regression of giant cell tumors of long bones.
Khirurgiia 40 no.5:115-119 My '64. (MIRA 18:2)

1. Kafedra rentgenologii i radiologii Tbilisskogo meditsinskogo instituta (zav.- prof. A.A. Kvaliashvili) i vtoraya kafedra khirugii Tbilisskogo instituta usovershenstvovaniya vrachey (zav.- prof. D.G. Mamamtavrishvili).

MAMAMTAVRISHVILI, David Grigor'yevich; GOL'DGAMMER, K.K., red.

[Diseases of the veins] Bolezni ven. Moskva, Izd-vo "Meditsina," 1964. 385 p. (MIRA 17:5)

MAMAMTAVRISHVILI, D.G.; NAKASHIDZE, D.K.; VANIDZE, TS., red.

[Osteoblastoclastoma; giant cell bone tumor] Osteoblastoklastoma; gigantokletochnaia opukhol' kosti. Tbilisi, Sabchota Sakartvelo, 1964. 134 p.
(MIRA 18:4)

CHEYSHVILI, A.S.; MAMAMTAVRISHVILI, D.G., prof., obshchestv. red.

[Cybernetics in clinical medicine] Kibernetika v klinicheskoi meditsine. Tbilisi, Sabchota Sakartvelo, 1964. 89 p. (MIRA 18:7)

MAMAMTAVRISHVILI, D.G.

Surgical correction of a disorder of portal hemodynamics in liver cirrhosis. Trudy Inst. eksp. morf. AN Gruz. SSR 11: 115-120 '63. (MIRA 17:11)

1. Kafedra khirurgii Tbilisskogo gosudarstvennogo instituta dlya usovershenstvovaniya vrachey.

MAMAMTAVRISHVILI, D.G.

Surgery for lung cancer. Trudy Tbil. GIDUV 6:69-73 '62.
(MIRA 16:2)

(LUNGS—CANCER) (LUNGS—SURGERY)

MAMAMTAVRISHVILI, D.G., prof.

Reliability and controversy in modern teaching on bone gigantomas. Khirurgiia no.9:97-104 '61. (MIRA 15:5)

1. Iz 2-y khirurgicheskoy kliniki (zav. - zasluzhennyy deyatel' nauki prof. D.G. Mamamtavrishvili) Tbilisskogo gosudarstvennogo instituta dlya usovershenstvovaniya vrachey.
(BONES--TUMORS)

MAMAMTAVRISHVILI, D.G.

Pathogenesis and treatment of cardiospasm. Khirurgiia 36
no.1:81-84 Ja '60. (MIRA 13:10)
(CARDIOSPASM)

MAMAMTAVRISHVILI, D.G., prof.

Pathogenesis of anemia connected with operations of the small intestine. Khirurgiia 35 no.7:84-88 Jl '59. (MIRA 12:12)

1. Iz 2-y kafedry (zav. - zasluzhennyy deyatel' nauki prof. D.G. Mamamtavrishvili) Tbilisskogo gosudarstvennogo instituta dlya usovershenstvovaniya vrachey.
(INTESTINE, SMALL, surgery)
(ANEMIA, etiology)

clinical determination of the latter, it is sufficient to determine the roentgenologic form of the entrance to the orbit (the aditus orbitae) or to measure the biorbital distance. To determine the absolute value of the depth of the O, special coefficients of correlation are provided.

USSR / Human and Animal Morphology - Sense Organs. S

Abs Jour : Ref. Zhur.-Biol., No. 22, 1958, No. 101527

Author : Mamamtavrishvili, D.G.
Inst : Tbilisi Post-Graduate Medical Institute.
Title : Method of Determining the Depth of the Orbit and Its Importance in the Choice of Operative Approach to the Retrobulbar Spaces.

Orig Pub : Tr. 2-y kafedry khirurgii. Tbilissk. in-t ysoversh. vrachey, 1957, Vol. 1, 5-28.

Abstract : In 233 skulls of persons of various ages, the techniques of craniometry, orbitometry, dioptography, and roentgenography were used to study the extreme forms of variability of the orbit (O). It was shown that the form of the opening into the O and the biorbital distance correlate with the extreme forms of depth of the O. Hence, for a

Card 1/2

MAMAMTAVRISHVILI, D.G., professor

Method of treating patients with anus preternaturalis. Khirurgiia 32 no.7:64-69 Jl '56. (MLRA 9:11)

1. Iz 2-y khirurgicheskoy kliniki (zav. - zasluzhennyy deyatel' nauki prof. D.G.Mamamtavrishvili) Tbilisskogo gosudarstvennogo instituta usovershenstvovaniya vrachey.

(COLOSTOMY
indic. & method)

MAMAMTAVRISHVILI, D. G.

Mamamtavrishvili, D. G.: "Pathogensis and treatment of wartime pseudoarthrosis," (Report), Trudy III Zakavkazsk. s"yezda khirurgov, Yerevan, 1948 (on cover: 1949), p. 355-366

SO: U-5240, 17 Dec. 53, (Letopis 'zhurnal 'nykh Statey, No. 25, 1949).

ACC NR: AP7003614

anisotropy energy is small because with the given concentration of Co ions in ferroxplan the first anisotropy constant changes its sign, i.e. $K_1=0$ for this composition. Measurements of magnetostriction showed that saturation magnetostriction of all investigated ferroxplans has a negative value. Orig. art. has: 3 figures and 1 formula.

SUB CODE: 20/ SUBM DATE: 31Mar66/ ORIG REF: 005/ OTH REF: 004

Card 2/2

ACC NR: AP7003614 SOURCE CODE: UR/0185/66/011/012/1341/1344

AUTHOR: Borovyk, Ye. S.—Borovik, Ye. S.; Dykyy, A. P.—Dikiy, A. P.; Mamaluy, Yu. O.—Mamaluy, Yu. A.

ORG: Khar'kov State University im. O.M. Gor'kiy (Kharkivs'kyy derzhuniversytet)

TITLE: Magnetostriction of ferroxplans

SOURCE: Ukrayins'kyy zhurnal, v. 11, no. 12, 1966, 1341-1344

TOPIC TAGS: magnetostriction, magnetic permeability, ferromagnetic material, cobalt containing alloy, nickel containing alloy

ABSTRACT: The magnetostriction of mixed ferroxplans of the type $Co_yNi_{z-y}W_{Va}$ (where W_{Va}-$BaO{\cdot}6Fe_2O_3$), and of some pure ferroxplans of the W type was measured. The measurements were made on polycrystalline samples with values of y = 0, 0.2, 0.4, 0.7, 1, 1.5, and 2. The ferroxplans investigated were in the form of solid solutions having different signs of the first anisotropy constant K_1. Investigation of the anisotropy energy and the magnetic permeability of such systems of mixed ferroxplans showed that, for given composition, a minimum of anisotropic energy and a maximum permeability exist. The value of the

Card 1/2

and lead hexaferrites. These constants for the Ferroxplanes do not differ greatly from those for the hexaferrites. The experimental values of the constants C were close to the values calculated from the magnetic moments of the constituent ions. The molecular field coefficients were calculated from the constants of the Neel equation under the assumption that the magnetically active ions are randomly distributed among the tetrahedral and octahedral sites, and these are tabulated for the Ferroxplanes, the three previously mentioned hexaferrites, and a number of cubic monoferrites. The intra-sublattice exchange integrals for the A sublattices of all the hexaferrites were found to be negative; this conflicts with the basic assumption of the Neel theory that the magnetic moments on one sublattice are aligned parallel. The inter-sublattice exchange integral was found to be negative for all the tabulated materials, indicating that the magnetic moments on the two different sublattices are antiparallel. This is in agreement with the Neel theory assumption of uncompensated antiferromagnetism in ferrites. The inter-sublattice exchange integral was found to be much greater (in absolute value) in the cubic ferrites than in the hexaferrites or the Ferroxplanes. Orig. art. has: 2 formulas, 4 figures and 2 tables.

SUB CODE: 20,07 SUBM DATE: 00 ORIG REF: 004 OTH REF: 004

L 08773-67 EWT(m)/EWP(w)/EWP(t)/ETI JD

ACC NR: AP6029140 SOURCE CODE: UR/0048/66/030/006/1079/1082

AUTHOR: Borovik, Ye.S. (Deceased); Mamaluy, Yu. A.

42

ORG: none

TITLE: Susceptibility of Ferroxplanes above the Curie point [Report, All-Union Conference on the Physics of Ferro- and Antiferromagnetism held 2-7 July 1965 in Sverdlovsk]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 6, 1966, 1079-1082

TOPIC TAGS: ferrite, paramagnetic susceptibility, temperature dependence, cobalt compound, nickel compound, barium compound, strontium compound

ABSTRACT: The authors have investigated the paramagnetic susceptibility of mixed Ferroxplanes of compositions $Co_yNi_{2-y}\overline{W}(Ba)$ and $Co_yNi_{2-y}\overline{W}(Sr)$, where W(X) stands for $O_2 \cdot XO \cdot (Fe_2O_3)_8$. This work is a continuation of earlier work on the same materials by the authors (Fiz. metallov i metallovedeniye, 16, 2 (1963); 18, 5 (1964)), and the measurement and sample preparation techniques are described in the earlier papers. The temperature dependence of the susceptibility above the Curie point was found to be of the type characteristic of ferrimagnetism. The constants $1/q_0$, C, θ, and s in the Neel equation $1/q = 1/q_0 + T/C - s/(T - \theta)$ for the paramagnetic susceptibility q of a ferrite as a function of the temperature T were derived from the experimental data and are tabulated, together with the corresponding constants for barium, strontium,

Card 1/2

BOROVIK, Ye.S.; MAMALUY, Yu.A.

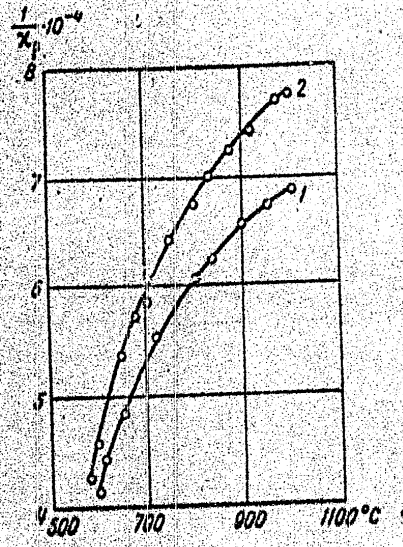
Temperature dependence of the magnetic permeability and anisotropic energy in certain systems of mixed ferroxplana. Fiz.met. metallored. 18 no.5:703-710 N '64. (MIRA 18:4)

1. Khar'kovskiy gosudarstvennyy universitet im. A.M.Gor'kogo.

S/126/63/015/002/026/033
E032/E314

A study of ....

Fig. 1:



Card 3/3

A study of ....

for which data have been published. It is concluded that since these constants are not very different, the molecular field constants of hexagonal and cubic ferrites are approximately the same. The atomic Curie constant for the Fe ion in the Ba, Pb and Sr ferrites is found to be 4.75, 5 and 4.25, respectively, which is in fair agreement with the result reported by Neel for Fe^{3+}.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet
(Khar'kov State University)

SUBMITTED: July 10, 1962

S/126/63/015/002/026/033
E032/E314

AUTHORS: Borovik, Ye.S. and Mamaluy, Yu.A.

TITLE: A study of the temperature dependence of the susceptibility of strontium and lead ferrites above the Curie point

PERIODICAL: Fizika metallov i metallovedeniye, v. 15, no. 2, 1963, 300 - 302

TEXT: The ferrites $PbO.(Fe_2O_3)_6$ and $SrO.(Fe_2O_3)_6$ were prepared from stoichiometric mixtures of the carbonates of Sr and Pb and Fe_2O_3. They were pressed into specimens of 60 x 5 x 5 mm and annealed at 900 °C for one hour. They were then reduced to 1.5 x 1.5 x 60 mm by a grinding wheel and baked at 1 200 °C. The paramagnetic susceptibility was measured by the Gouy method (Borovik-Romanov and Kreynes - ZhETF, 1955, 29, 6, 790) and the results obtained are shown in Fig. 1, in which 1 represents the strontium ferrite and 2 the lead ferrite. As can be seen, these curves do not follow the Curie-Weiss law. The constants of Neel's theory (Ann. de Phys., 1948, 3, 137) are evaluated for the strontium and lead ferrites and for the Ba, Mg, Ni and Mn ferrites,

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considerably reduced coercive force, for instance for the barium ferrite from 3050 to 300 Oe, yet the Hopkinson effect remained absent. Its absence is therefore typical of hard hexagonal ferrites and is not due to special features of the domain structure in the condition of high coercivity. There is 1 figure.

ASSOCIATION: Khar'kovskiy gosuniversitet im. A.M.Gor'kogo
(Khar'kov State University imeni A.M.Gor'kiy)

SUBMITTED: October 17, 1961

Card 2/2

39757

S/126/62/014/001/016/018
E194/E435

24,2200

AUTHORS: Borovik, Ye.S., Mamaluy, Yu.A.

TITLE: The magnetic susceptibility of coarse grained hexagonal ferrites

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.1, 1962, 146-147

TEXT: In previous articles the authors studied as functions of temperature the susceptibility of hexagonal ferrites of Ba, Sr, Pb, whose special feature is the absence of an increase in the initial susceptibility on approaching the Curie point (absence of Hopkinson effect). This feature could be due to some special feature of magnetic structure leading to a higher coercive force and might not be a typical property of the materials. It was accordingly of interest to test these ferrites when produced at higher firing temperatures, i.e. when they had coarse grains. The barium and strontium ferrite specimens were prepared as before but were twice fired at 1400°C for 1.5 hours, during which the grain size grew to 1 mm in cross-section. The result was a

Card 1/2

80881

S/126/60/009/06/005/025

E073/E335

Temperature Dependence of the Magnetisation of Hexagonal Ferrites in Weak Fields

There are 5 figures and 9 references, 2 of which are Soviet, 1 Japanese (in English) and 6 English.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A.M. Gor'kogo (Khar'kov State University im. A.M. Gor'kiy)

SUBMITTED: January 18, 1960

Card 3/3

Temperature Dependence of the Magnetisation of Hexagonal Ferrites in Weak Fields

lead. Except for some changes in the temperature regime for the lead and strontium ferrites, the specimens were produced by the same methods which were used earlier. The measured results show that the investigated ferrites do not possess any Hopkinson effect. In addition to the ordinary Hopkinson effect, maximum susceptibility was observed for cobalt in the range in which there is a change in the sign of the anisotropy constant. It is pointed out that this character of the changes in I_s/K values for barium ferrite is caused not so much by the changes in the $K = f(T)$ curve but by the fact that the saturation magnetisation decreases to a considerable extent even at temperatures differing greatly from that of the Curie point. In the case of soft (cubic) ferrites, which show a Hopkinson effect, a rapid drop in the saturation magnetisation begins at relatively higher temperatures than it does for barium ferrites.

Card 2/3

80881

S/126/60/009/06/005/025
E073/E335

24.2200

AUTHORS: Borovik, Ye.S. and Mamaluy, Yu.A.

TITLE: Temperature Dependence of the Magnetisation of Hexagonal Ferrites in Weak Fields

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 6, pp 828 - 831 (USSR)

ABSTRACT: In an earlier paper (Ref 1) the authors described the results of investigations of the temperature dependence of the susceptibility of barium ferrite in weak fields below the Curie point. A feature of the dependence I = f(T) for barium ferrite is the absence of an increase in the initial susceptibility on approaching the Curie point (Hopkinson effect). Therefore, the authors consider it of interest to elucidate whether this feature is restricted to barium ferrite or whether it is also a property of other rigid ferrites. Furthermore, the investigations on barium ferrite were continued in weaker fields than was done in the earlier work (Ref 1).

The magnetisation of the specimen was measured by means of a ballistic method in the same way as in the earlier work. The temperature dependence of the magnetisation was studied in ferrites of barium, strontium and

Card1/3

68480

S/126/60/009/01/007/031
E021/E191

The Temperature Dependence of the Magnetic Susceptibility of Barium Ferrite

The theoretical equation for initial susceptibility is given (Eq 3). The calculated result is 0.012 and the experimental result 0.04. In spite of this deviation it is considered that magnetisation takes place in the main by processes of rotation.
There are 4 figures and 9 references, of which 6 are Soviet and 3 English.

Card 2/2

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet imeni A.M. Gor'kogo
(Khar'kov State University imeni A.M. Gor'kiy)

SUBMITTED: June 16, 1959

68480

S/126/60/009/01/007/031
E021/E191

24.7900

AUTHORS: Borovik, Ye.S., and Mamaluy, Yu.A.

TITLE: The Temperature Dependence of the Magnetic Susceptibility of Barium Ferrite

PERIODICAL: Fizika metallov i metallovedeniye. 1960, Vol 9, Nr 1, pp 36-40 (USSR)

ABSTRACT: Samples were prepared from powders of $BaCO_3$ and Fe_2O_3 to give stoichiometric $BaO.6Fe_2O_3$. The moist powders were mixed for three hours, dried at 1000 °C for five hours, pressed and sintered at 1200 °C for one hour. Measurements of the magnetisation were carried out by a ballistic method using Below's apparatus (Fig 1). Results of measurements above the Curie point (450 °C) are given in Fig 2. Some previous results (Ref 2) are also shown. All the points from both investigations lie on the same curve. The curve obtained agrees with Neel's theory for paramagnetic susceptibility to a temperature of 469 °C. Results obtained at temperatures below the Curie point are given in Fig 3. The Hopkinson effect (an increase in initial susceptibility near the Curie point) is absent with magnetisation of less than 1% of I_s.

Card 1/2

80881

S/126/60/009/06/005/025

E073/E335

Temperature Dependence of the Magnetisation of Hexagonal Ferrites in Weak Fields

There are 5 figures and 9 references, 2 of which are Soviet, 1 Japanese (in English) and 6 English.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A.M. Gor'kogo (Khar'kov State University im. A.M. Gor'kiy)

SUBMITTED: January 18, 1960

Card 3/3

Temperature Dependence of the Magnetisation of Hexagonal Ferrites in Weak Fields

lead. Except for some changes in the temperature regime for the lead and strontium ferrites, the specimens were produced by the same methods which were used earlier. The measured results show that the investigated ferrites do not possess any Hopkinson effect. In addition to the ordinary Hopkinson effect, maximum susceptibility was observed for cobalt in the range in which there is a change in the sign of the anisotropy constant. It is pointed out that this character of the changes in I_s/K values for barium ferrite is caused not so much by the changes in the $I_s/K = f(T)$ curve but by the fact that the saturation magnetisation decreases to a considerable extent even at temperatures differing greatly from that of the Curie point. In the case of soft (cubic) ferrites, which show a Hopkinson effect, a rapid drop in the saturation magnetisation begins at relatively higher temperatures than it does for barium ferrites.

80881

S/126/60/009/06/005/025
E073/E335

24.2200

AUTHORS: Borovik, Ye.S. and Mamaluy, Yu.A.

TITLE: Temperature Dependence of the Magnetisation of Hexagonal Ferrites in Weak Fields

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 6, pp 828 - 831 (USSR)

ABSTRACT: In an earlier paper (Ref 1) the authors described the results of investigations of the temperature dependence of the susceptibility of barium ferrite in weak fields below the Curie point. A feature of the dependence I = f(T) for barium ferrite is the absence of an increase in the initial susceptibility on approaching the Curie point (Hopkinson effect). Therefore, the authors consider it of interest to elucidate whether this feature is restricted to barium ferrite or whether it is also a property of other rigid ferrites. Furthermore, the investigations on barium ferrite were continued in weaker fields than was done in the earlier work (Ref 1).

The magnetisation of the specimen was measured by means of a ballistic method in the same way as in the earlier work. The temperature dependence of the magnetisation was studied in ferrites of barium, strontium and

Card1/3

MAMALUY, Aleksandr Prokof'yevich, kand. ekon. nauk, dots.; VASIL'YEV, O.M., otv. red.; BUTAKOVA, N.S., red.; CHERNYSHENKO, Ya.T., tekhn. red.

[Commodity production in the period of transition from capitalism to socialism in the U.S.S.R.] Tovarnoe proizvodstvo v perekhodnyi period ot kapitalizma k sotsializmu v SSSR. Khar'kov, Izd-vo Khar'kovskogo gos.univ. im. A...Gor'kogo, 1958. 45 p. (MIRA 11:12)
(Russia--Economic conditions)

MAMALIGA, X

Influence of the some quaternary ammonium salts on the reduction of oxygen at the surface of the mercury drop electrode. Xenia Mămăligă. *Acad. rep. populare Romîne, Insl. biochim. Studii cercetări biochim.* 2, 413-24(1950).—The interfacial activity of 6 quaternary ammonium salts: hexadecylpyridine, 3-carboxy-*N*-hexadecylpyridine, 3-amido-*N*-hexadecylpyridine, octylpyridine, 3-carboxy-*N*-octylpyridine, and 3-amido-*N*-octyl-pyridine, and of the manner in which they influence by adsorption the 2 degrees of redn. of O at the surface of the Hg-drop electrode were studied. All the salts exercised a characteristic influence on the redn. of O, and especially on the decompn. of oxygenated water. Thus the groups in which the pyridine nucleus contains a carboxyl radical shifted the degree of redn. of oxygenated water toward a more strongly neg. potential, and those substances contg. a pyridine nucleus with an amide radical catalyzed the process of decompn. of oxygenated water, shifting the degree of redn. toward a more markedly pos. potential. Felicitas D. Goodman

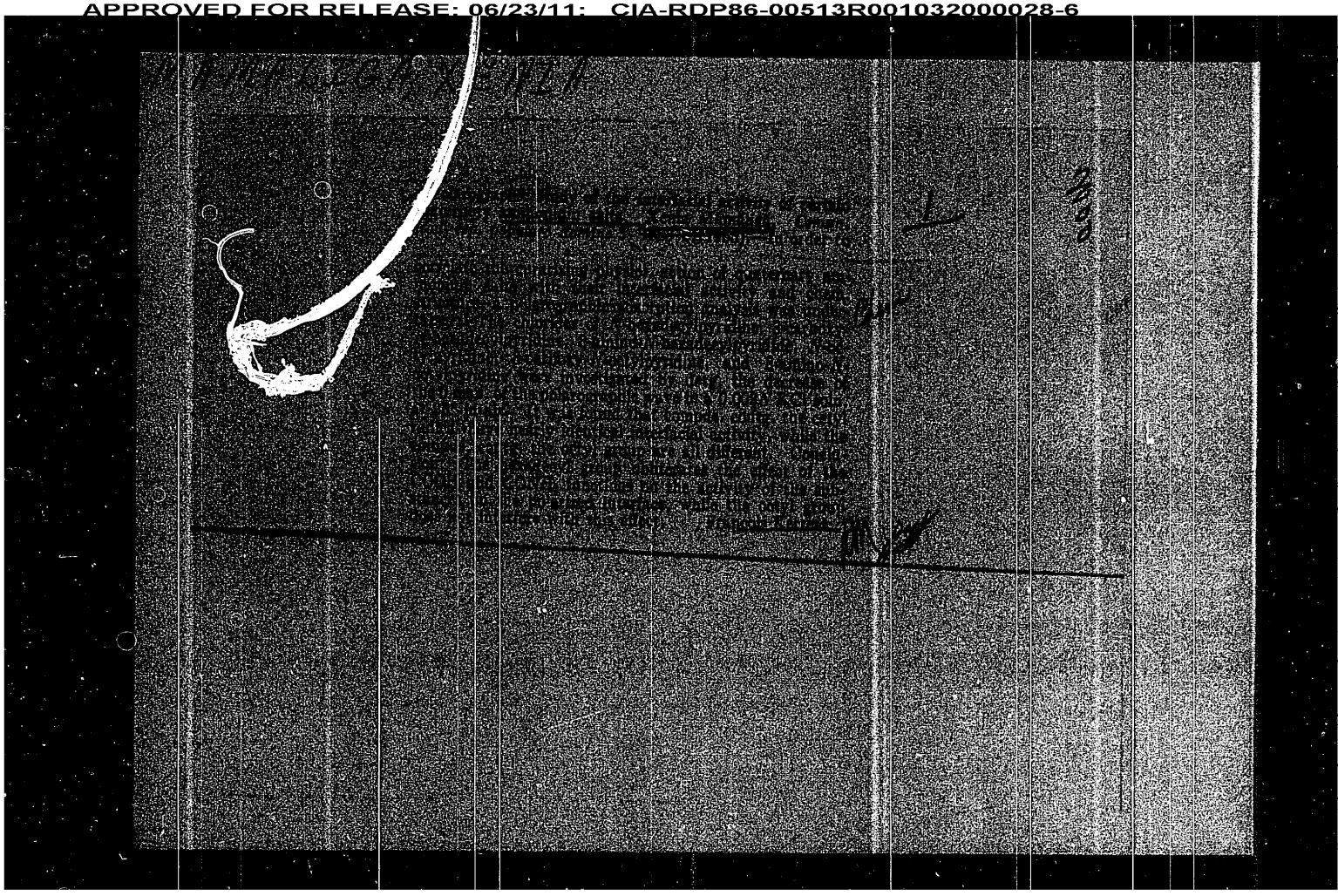
MAMALIGA, K: SERBAN, M.

Pplarographic analysis of surface activities of certain curalizing substances used in medicine. p. 375.

Academia Republici Populare Romine. COMUNICARILE. Bucuresti, Rumania.
Vol. 8, no.4, Apr. 1958

Monthly list of East European Accessions (EEAI) LC, Vol. 8, no.7, July 1959

Uncl.



MAMALIGA, Xenia
CA

1113

Investigation of new methods for biochemical diagnosis. 1. Precipitation of proteins of human, normal, and cancerous serums, by sulfosalicylic acid which diffuses from amyl alcohol into the serum. Eugen Macovski and Xenia Mămăligă. *Acad. Rep. Populare Române, Bul. Stiinţ.*, Sect. A., 1, 501–9(1949)(French summary).—Sulfosalicylic acid 3% dissolved in AmOH was added to human blood serum progressively dild. with water to produce progressive and slow pptn. of the different protein fractions. The pptd. fractions were detd. photoelectrometrically (and by B. Lange's model S.60, multiplex-galvanometer). The markedly different results obtained with normal and cancerous serums are reported in tables. Emanuel Merdinger

1951

L 01075-67
ACC NR: AT6026359

3

not just of changes in their values. In particular, "impulse" in the sense of Kelvin cannot be substituted for the "amount of motion" in the Landau number in calculation of the critical rate of vortex formation in helium II. "I take advantage of the occasion to express my sincere thanks to I. M. Khalatnikov and G. R. Khutsishvili for their valuable comments." Orig. art. has: 20 formulas.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 005

kh

Card 2/2

L 04075-67 EWP(m)/EWT(1)/EWT(m)/EWP(t)/ETI IJP(c) WW/JD

ACC NR: AT6026359 SOURCE CODE: UR/3208/65/000/001/0059/0070

53
50
B+1

AUTHOR: Mamaladze, Yu. G.

ORG: none

TITLE: The momentum imparted by the vortices of an ideal incompressible fluid and "impulse" in the Kelvin sense

SOURCE: AN GruzSSR. Institut fiziki. Fizika nizkikh temperatur (Low temperature physics), no. 1. Tiflis, Izd-vo Metsniyereba, 1965, 59-70

TOPIC TAGS: hydrodynamic theory, fluid dynamics

ABSTRACT: The article is devoted basically to a theoretical consideration of the distinction between the concepts of "impulse" in the sense of Kelvin and the "true" momentum, that is, the "amount of motion." The treatment starts with a restatement of the conclusions of Kelvin, reinforced by other data. Formulas are derived for the two dimensional case, which can also be extended to the case of the three dimensional problem. It is concluded that "impulse" in the Kelvin sense can, in many cases, replace the conventional momentum (amount of motion). However, these two concepts are not identical and cannot replace one another in cases where it is a question of their absolute magnitudes, and

Card 1/2

L 01076-67
ACC NR: AT6026360

where the dimensionless momentum p is determined by the formula

$$\vec{p} = -i \int \psi^* \nabla \psi \, dV = \int \psi_0^* \nabla \varphi \, dV. \qquad (2)$$

Here n_0 is the atomic density of the liquid in regions infinitely distant from the vortices and the boundaries of the surface (where $\psi_0 = 0$); a_0 is the characteristic length, depending on the physical properties of the liquid; the symbol ∇ indicates differentiation with respect to the dimensionless coordinates; dV is an element of volume, measured in the units a_0^3. The remainder of the paper consists of an extended mathematical treatment of the problem on the above premises. Orig. art. has: 6 formulas.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 008/ OTH REF: 007

kh

Card 2/2

L 04076-67 EWP(m)/EWT(1)/EWT(m)/EWP(t)/ETI IJP(c) WW/JD

ACC NR: AT6026360 SOURCE CODE: UR/3208/65/000/001/0071/0075

AUTHOR: Laperashvili, L. V.; Kamaladze, Yu. G. 39

ORG: none

TITLE: The momentum of vortices in helium II

SOURCE: AN GruzSSR. Institut fiziki. Fizika nizkikh temperatur (Low temperature physics), no. 1. Tiflis, Izd-vo Metsniyereba, 1965, 71-75

TOPIC TAGS: helium, hydrodynamic theory

ABSTRACT: In the majority of papers dealing with the determination of the critical rate of vortex formation in helium II, use is made of the Landau criterion $v_c = E/P$, where E and P are the energy and the momentum imparted by the vortex to the liquid. The present work is devoted to a clarification of certain misunderstandings involved in calculation of the quantity P in the denominator of the Landau formula. If we use the phenomenological description of a quantum liquid by the formula $\psi = \psi_0 \exp(i\varphi)$, its momentum is equal to:

$$\vec{P} = \frac{h}{2\pi} n_0 a_0^2 \vec{p}, \qquad (1)$$

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L 22135-66

ACC NR: AP6004935

size. The calculations are first made for the flow of the superfluid liquid in a single channel, assumed to be sufficiently narrow so that the normal component of the helium II remains immobile. This is followed by an extension of the results to include a large number of pores. It is shown that the density of the superfluid component of helium II bordering on a porous medium is increased by the propagation of the wave field of the condensate in the neighboring regions, and in this lies the analogy with the Josephson effect wherein current flows, without encountering resistance, through an insulator placed between two superconducting samples. The flow of the superfluid component through a porous medium through a porous partition immersed in a superfluid liquid is described and the critical fluxes at which the superfluidity breaks down are evaluated. The authors thank E. L. Andronikashvili for a remark made during the course of the work. Orig. art. has: 37 formulas.

SUB CODE: 20/ SUBM DATE: 12Jul65/ ORIG REF: 003/ OTH REF: 004

Card 2/2 BK

L 22135-66 EWT(1)/EWP(m)/EWT(m)/EPF(n)-2/EWA(d)/EWP(t)/ETC(m)-6/EWA(1) LJP(c)
ACC NR: AP6004935 JD/WW/GG SOURCE CODE: UR/0056/66/050/001/0169/0178

AUTHOR: Mamaladze, Yu. G.; Cheyshvili, O. D.

ORG: Institute of Physics, Academy of Sciences, Georgian SSR (Institut fiziki Akademii nauk Gruzinskoy SSR)

TITLE: Flow of a superfluid liquid in porous media

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 1, 1966, 169-178

TOPIC TAGS: superfluidity, wave function, quantum liquid, liquid helium, liquid flow, porosity, fluid density

ABSTRACT: This is a continuation of earlier work (ZhETF Pis'ma v. 2, 123, 1965), where the authors proposed to describe the behavior of a superfluid situated in a porous medium by means of a phenomenological wave function averaged over a volume containing many pores. In the present article the authors derive a more general balance equation, and consider problems connected with the flow of the liquid, and especially the possibility of observing in helium II the analog of the Josephson direct current. To this end, a modified balance equation of phenomenological superfluidity theory is proposed, and it is shown that in the vicinity of a large helium II volume, the density of the superfluid component in a porous substance increases, the "penetration depth" of the effect increasing with decreasing pore

Card 1/2

L 21806-66

ACC NR: AP6012181

merely confirm their conclusions by means of an approximate calculation, which is valid in the particular case of an "infinitely" deep "normal" region, covered by a "thin" superfluid layer. The critical thickness of the "superfluid" layer over the "infinitely" deep "normal" region is estimated at $\approx 2.2 \times 10^{-3}$ cm. The shift of the λ point, due to the external pressure, is estimated. Orig. art. has: 8 formulas.

SUB CODE: 20/ SUBM DATE: 31Jan66/ ORIG REF: 003/ OTH REF: 001

Card 2/2 PB

L 21806-66 EWT(m)/EWP(t) IJP(c) JD

ACC NR: AP6012181 SOURCE CODE: UR/0386/66/003/008/0305/0309

AUTHOR: Kiknadze, L. V.; Mamaladze, Yu. G.; Chyshvili. O. D.

ORG: Institute of Physics, Academy of Sciences Georgian SSR (Institut fiziki Akademii nauk Gruzinskoy SSR)

TITLE: State of liquid helium in the vicinity of the λ line

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 3, no. 8, 1966, 305-309

TOPIC TAGS: liquid helium, quantum liquid, superfluidity, critical point

ABSTRACT: The authors consider a vessel filled with liquid helium, such that at a certain depth the pressure corresponds to the λ line, and prove that contrary to expectations, the liquid helium should actually be either superfluid throughout or normal throughout. The proof is obtained by showing that the equation of the phenomenological superfluidity theory of Ginzburg and Pitayevskiy (ZhETF v. 34, 1240, 1958) admits of a nonzero solution, defined in the entire vessel. This means in turn that superfluidity is possible in the "normal" region, and under certain critical conditions the liquid remains normal even in the "superfluid" region. Since the rigorous proof entails certain mathematical difficulties, the authors

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L 4128-66
ACCESSION NR: AP5024714

3

spacing of the field structure and d is the sample thickness. This poses strict collimation requirements for the neutron beam. This problem is, however, alleviated by the use of the main (passing) rather than the diffracted beam proposed in other methods. The greatest difficulty is anticipated in the necessity of using superconductors with a "monocrystalline" vortex grating, which is more essential here than in neutron diffraction experiments. Numerical estimates on the basis of expressions developed in this work point to attainment of a ten percent polarization. Orig. art. has: 31 formulas.

[18]

ASSOCIATION: Institut fiziki Akademii nauk Gruzinskoy SSR (Institute of Physics, Academy of Sciences Georgian SSR)

44,55

SUBMITTED: 17Apr65 ENCL: 00 SUB CODE: EM,SS

NO REF SOV: 002 OTHER: 004 ATD PRESS: 4127

Card 2/2

L 4128-66 EWT(1)/EWT(m)/EPF(n)-2/EWA(h) IJP(c) AT

ACCESSION NR: AP5024714 UR/0056/65/049/003/0925/0929

AUTHOR: Mamaladze, Yu.G.; Kharadze, G.A.; Cheyshvili, O.D. 44,55

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v.49, no.3, 1965, 925-929

TITLE: Passage of polarized neutrons thru a superconductor in a mixed state

TOPIC TAGS: superconductor magnetic field, mixed state superconductor field, superconductor magnetic structure, polarized neutron beam method, superconductivity

ABSTRACT: The author develops a method for the determination of the two-dimensional periodic magnetic field structure known to exist in a second-kind superconductor in a mixed state. For a beam of monochromatic polarized neutrons passing through such a superconductor, the author finds that the beam directions resulting in depolarization maxima of the beam are related to the parameters of the two-dimensional internal field structure and its type of symmetry. This definite dependence is suggested for a method for the study of the two-dimensional lattice of Abrikosov vortices. One difficulty is seen in the narrowness of the beam depolarization maxima; their angular limits are of the order of $\Delta\beta \approx L/d$, where L is the average lattice

Card 1/2

L 61045-65
ACCESSION NR: AP5013912

the volume between the vortices. Extensive use is made of the analogy between the equations of motion of the superfluid, and the equations of the Ginzburg-Landau theory, used by A. A. Abrikosov (ZhETF v. 32, 1442, 1957), to explain the properties of superconductors of the second kind. This property of networks of quantum vortices is indicative of the principal difference between the wave function phases and the velocity potentials of the networks of geometrically identical classical and quantum vortices. This difference accounts for the capacity of the quantum vortices to create a rigid two-dimensional network. Orig. art. has: 14 formulas.

ASSOCIATION: Institut fiziki Akademii nauk Gruzinskoy SSR (Institute of Physics, Academy of Sciences, Georgian SSR)

SUBMITTED: 25Dec64 ENCL: 00 SUB CODE: ME,ID

NR REF SOV: 007 OTHER: 005

Card 2/2

L 61043-65 EWT(1)/EWT(m)/EWP(t)/EWP(b)/EPF(c) Pt-4 IJP(c) JD
ACCESSION NR: AP5013912 UR/0056/65/048/005/1520/1525

AUTHOR: Kiknadze, I. V.; Mamaladze, Yu. G.; Chkhaidze, O. D.

TITLE: Concerning the vortex structure of rotating helium

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 5, 1965, 1520-1525

TOPIC TAGS: rotating helium, quantum liquid, superfluidity, quantum vortex, Onsager Feynman vortex

ABSTRACT: The rotation of superfluid liquid helium and its interaction with the motion of the Onsager-Feynman vortex filaments is considered on the basis of the phenomenological theory of liquid helium developed by V. L. Ginzburg and L. P. Pitaevskiy (ZhETF v. 34, 1240, 1958 and later papers by Pitaevskiy). It is shown, by analysis of the equations for the equilibrium rotation of liquid helium in a sufficiently large vessel, that the two-dimensional network of vortices produced in the rotating liquid helium can rotate about the axis of rotation of the normal component (the vessel). In fact, this is the only way in which it is possible to avoid the energy dissipation that is inevitable when there is relative motion between the vortices and the normal liquid in the helium. It is shown further that regions where the superfluid rotation is directly opposite to the rotation of the vessel exist in

Card 1/2

MAMALADZE, Yu.G.; CHEYSHVILI, O.D.

Phenomenological wave function of a superfluid liquid in a porous medium. Pis'ma v red. Zhur. eksper. i teoret.fiz. 2 no.3:123-125 Ag '65. (MIRA 18:12)

1. Institut fiziki AN GruzSSR. Submitted June 10, 1965.

ACCESSION NR: AP4019250

covered vessel) the rotation of the He II cannot be homogeneous, because of the bending of the quantized vortex lines as they emerge from the non-planar surface. This in turn causes depression of the meniscus near the axis of rotation. The assumption of weak inhomogeneity of rotation and the small curvature of the meniscus do not lead to quantitative conclusions as yet, but calculations with allowance for these factors are under way. Orig. art. has: 13 formulas.

ASSOCIATION: Institut fiziki AN GruzSSR (Institute of Physics, AN GruzSSR)

SUBMITTED: 06Aug63 DATE ACQ: 27Mar64 ENCL: 00

SUB CODE: PH NO REF SOV: 005 OTHER: 000

Card 2/2

ACCESSION NR: AP4019250 S/0056/64/046/002/0804/0806

AUTHORS: Kemoklidze, M. P.; Mamaladze, Yu. G.

TITLE: On the shape of the meniscus of rotating He II

SOURCE: Zhurnal eksper. i teor. fiz., v. 46, no. 2, 1964, 804-806

TOPIC TAGS: liquid helium, helium II, superfluidity, quantum liquid, quantized vortex filaments, irrotational region, liquid helium meniscus, liquid helium free surface

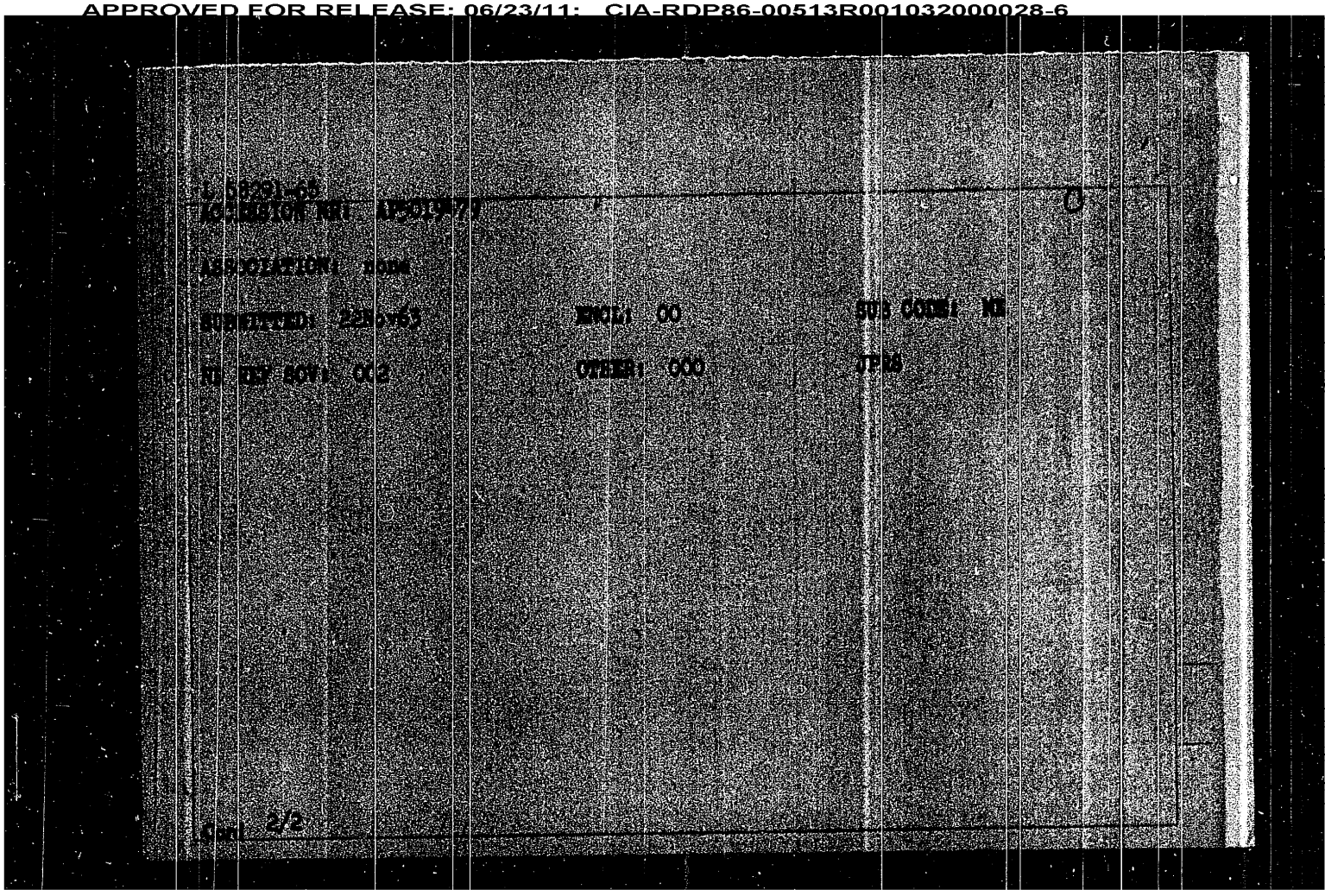
ABSTRACT: The hydrodynamic equations of rotating He II are analyzed in order to clarify the character of their stationary solution and the form of the meniscus of the rotating liquid. This study was undertaken in view of the failure of earlier attempts to relate the conical funnel on the meniscus rotation axis with the formation of an irrotational rotating region surrounding a central vortex. It is shown that in the presence of a free surface (such as in an un-

Card 1/2

KEMOKLIDZE, M.P.; MAMALADZE, Yu.G.

Irrotational region in rotating He II. Zhur. eksper. i teor. fiz. 46 no.1:165-166 Ja'64. (MIRA 17:2)

1. Institut fiziki AN Gruzinskoy SSR.



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[illegible] WW/EM

ACCESSION NR: AP5019479 UR/0040/64/028/005/0952/0955

39
B

AUTHOR: Manaladze, Yu. G. (Tbilisi)

TITLE: Deep penetrating transverse waves in a rotating viscous fluid

SOURCE: Prikladnaya matematika i mekhanika, v. 28, no. 5, 1964, 952-955

TOPIC TAGS: incompressible fluid, wave mechanics

ABSTRACT: The article shows that as the frequency of rotation of a fluid approaches half the frequency of the axial oscillations of a disc in the fluid, the depth of penetration of viscous waves generated by the oscillations of the disc increases sharply. The paper is a particular case of a more general discussion of the axial oscillations of a disc in a rotating, viscous, incompressible fluid (Manaladze Yu. G. and Matinyan S. G., "Hydrodynamic Oscillations of a Disc in a Rotating Fluid," Prikladnaya matematika i mekhanika, Vol 24, No 5, 1960). "The author thanks E. L. Andronikashvili, S. G. Matinyan and D. S. Tsakadze for their interest in the work and participation in the discussions." Orig. art. has: 30 formulas.

Card 1/2

"Momentum of liquid helium II and critical velocity calculations."

report submitted for 9th Intl Conf on Low Temperature Physics, Columbus, Ohio, 31 Aug-4 Sep 64.

Inst of Physics, AS GSSR, Tbilisi.

L 13839-63 EWT(1)/BDS AFFTC/ASD GG

ACCESSION NR: AP3003147 S/0056/63/044/006/2118/2121

53

AUTHOR: Mamaladze, Yu. G.; Matinyan, S. G.

TITLE: On the stability of rotation of a superfluid liquid

SOURCE: Zhurnal eksper. i teor. fiziki, v. 44, no. 6, 1963, 2118-2121

TOPIC TAGS: superfluidity, stability of rotation, vortex filament, helium-two

ABSTRACT: It is shown that the region of stability of the stationary mode of motion of a superfluid liquid rotating between two coaxial cylinders is broader than the corresponding region for an ideal classical liquid, this being due to the stabilizing influence of the quantized vortex filaments. This theoretical deduction is checked against an experiment made for a gap between coaxial cylinders with inside and outside radii of 1.9 and 2 cm, with one cylinder stationary, at 1.35°K, and is found to agree satisfactorily with the experimental data. Orig. art. has: 15 formulas.

ASSOCIATION: Institut fiziki Akademii nauk Gruzinskoy SSR (Institute of Physics, Academy of Sciences, Georgian SSR)

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The Properties of Quantized Vortices Occurring in Rotating Helium II

S/053/61/073/001/001/011
B006/B056

I. L. Bekarevich and I. M. Khalatnikov, as well as by Yu. G. Mamaladze and S. G. Matinyan are discussed. In the fourth part, the theory of small oscillations of axially-symmetric bodies in rotating He II is explained. The hydrodynamic equations for the case of small oscillation amplitudes are linearized, and methods of solution are discussed. Several special cases are discussed. I. P. Kaverkin, L. D. Landau, P. L. Kapitsa, I. M. Chkheidze, Kiknadze and Tkemaladze are mentioned. There are 17 figures and 35 references: 22 Soviet, 2 Dutch, 5 US, 1 Italian, and 5 British.

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velocity distribution in moving vortices of a superfluid liquid, and the experiments by Hall and Vinen (measurement of the circulation quantum). The second part deals with the oscillations of a solid in rotating He II; the following problems are discussed in detail: results obtained by Hall and Vinen, the energy properties of vortex systems, experimental and theoretical results obtained by Andronikashvili and Tsakadze, a disk in rotating He II, the effective density of the superfluid component as a function of the rate of rotation; comparison of the results obtained by Hall with those of scientists of the Tbilisi group (the authors); study of the damping of oscillations of a solid in rotating He II, results obtained by experimental investigations carried out at the Cryogenics Laboratory of Tbilisskiy universitet (Tbilisi University); the logarithmic damping decrement of oscillations as a function of the rotation rate under various conditions, temperature dependence of damping, dependence of the rate upon damping and oscillation frequency, resonance phenomena, investigation of the rate dependence of damping of torsional oscillations, etc. Part 3 deals with the hydrodynamics of rotating helium II; after an introduction several results obtained by theoretical investigations by Hall

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S/093/61/073/001/001/004
B006/B056

AUTHORS: Andronikashvili, E. L., Mamaladze, Yu. G., Matinyan, S. G., Tsakadze, D. S.

TITLE: The Properties of Quantized Vortices Occurring in Rotating Helium II

PERIODICAL: Uspekhi fizicheskikh nauk, 1961, Vol. 73, No. 1, pp. 3 - 40

TEXT: A detailed review is given of experimental and, above all, theoretical investigations on the hydrodynamics of oscillations of solids suspended in rotating He II. Progress achieved recently in this field is of special importance for problems of superfluidity. The present review gives no new material but merely an explanation of the present stage of research work in this field, the authors mainly discussing their own publications and the results of their own investigation. The paper consists of four parts. The first part deals with the transcritical properties connected with the rotation of He II, the superfluid and normal components of He II, the hypothesis by Onsager-Feynman on the formation of vortex filaments and the variational problem connected herewith, the

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83778

The Problem of Mutual Friction in Helium II

S/056/60/039/003/039/045
B004/B060

ASSOCIATION: Institut fiziki Akademii nauk Gruzinskoy SSR (Institute of Physics of the Academy of Sciences, Gruzinskaya SSR)

SUBMITTED: April 25, 1960

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$(\rho_n/2\rho)B''(\omega/\omega)(\vec{\omega}, \vec{v}_n - \vec{v}_s)$ (2). Coefficient B" could be measured from the damping of the cylinder oscillations along its axis (which is identical with the rotational axis of the liquid). The respective hydrodynamic equations are solved under the following boundary conditions: $v_{nr}(R) = 0$; $v_{n\varphi}(R) = \omega_0 R$, $v_{nz}(R) = i\Omega z_0 \exp(i\Omega t)$ (3) (R = radius of cylinder, ω_0 = angular velocity, Ω = frequency of oscillations, z_0 = their amplitude). The following equation serves for measuring B": $(\gamma_2 - \gamma_1)/(\gamma_2 - \gamma_1) = 1 + (\omega_0\rho_s/2\Omega\rho)B''$ (7). γ_2, γ_1 are the damping factors when dipping the cylinder to the depth l_2, l_1. If $B'' \gtrless 0$, a linear increase in damping should then be observed with rising ω_0. The author refers to a private communication made by I. L. Bekarevich and I. M. Khalatnikov, and thanks E. L. Andronikashvili, S. G. Matinyan, and D. S. Tsakadze for their discussions. There are 4 references: 3 Soviet and 1 British.

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83778

S/056/60/039/003/039/045
B004/B060

11.3100

AUTHOR: Mamaladze, Yu. G.

TITLE: The Problem of Mutual Friction in Helium II

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 3 (9), pp. 859-860

TEXT: The author writes down the equation obtained in Refs. 1-3 for the force of mutual friction which is exerted by the normal component of rotating liquid helium on the unit of mass of fluid helium:

$$\vec{F}_{sn} = -(\rho_n/2\rho)B'\left[\vec{\omega}, \vec{v}_n - \vec{v}_s\right] - (\rho_n/2\rho)B.\left[(\vec{\omega}/\omega)\left[\vec{\omega}, \vec{v}_n - \vec{v}_s\right]\right] \quad (1).$$

$\vec{\omega} = \text{curl } \vec{v}_s$, B and B' are the coefficients of mutual friction according to Hall and Vinen (Ref. 1). The two terms of equation (1) are perpendicular to $\vec{\omega}$. The author points out the possibility of experimentally proving the presence of a third component being parallel to $\vec{\omega}$. This component would enter equation (1) as an additional term

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Damping of Vibrations of a Cylinder Located in Rotating Helium II

S/056/60/038/02/55/061
B006/B014

co-workers of the cryogen laboratory of Tbilisskiy gosudarstvennyy universitet (Tbilisi State University) for their interest in this investigation. There are 8 references: 6 Soviet and 2 British.

ASSOCIATION: Institut fiziki Akademii nauk Gruzinskoy SSR (Physics Institute of the Academy of Sciences, Gruzinskaya SSR)

SUBMITTED: November 20, 1959

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is also given for the complex wave number k. These formulas indicate that M depends on the velocity of rotation only if the coefficients of the mutual friction between superfluid and normal component β_n and β_s do not vanish. Consequently, the rotation-dependent vibration damping of the cylinder is characteristic only of He II. Within a wide frequency range it was found that at R $\approx$ 1 cm the penetration depth of the cylindrical waves produced by the vibrations of the cylinder in rotating He II is considerably smaller than the cylinder radius. Thus, the application of an asymptotic expansion of the cylinder functions for great arguments is justified. Thus, one obtains an expression for the damping γ', and in order to exclude boundary effects, the difference of the damping factors $\gamma_2 - \gamma_1$ is measured at two different immersion depths of the cylinder. For the ratio between the differences, once measured in rotating and once in resting He II, one obtains $(\gamma_2 - \gamma_1)/(\gamma_2 - \gamma_1)_{\omega_0=0} = 1 + \omega_0 \varrho_s B/2\Omega\varrho$, where ϱ_s/ϱ denotes the relative density of the superfluid component, and B is a coefficient according to Hall and Vinen. The authors thank E. L. Andronikashvili and the

Mamaladze, Yu.G.

S/056/60/038/02/55/061
B006/B014

24.5600

AUTHORS: Mamaladze, Yu. G., Matinyan, S. G.

TITLE: Damping of Vibrations of a Cylinder Located in Rotating Helium II

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 38, No. 2, pp. 656-657

TEXT: The present "Letter to the Editor" deals with a previous article (Ref. 1) which shows that interaction between a disk vibrating in rotating helium II and the vortex filaments leads to a specific dependence of the damping on the speed of rotation, which has a characteristic maximum. The solution of the system of hydrodynamic equations for an infinite cylinder whose surface is parallel to the vortex filaments shows that in the case of slight vibrations the force acting upon the cylinder surface results only from the momentum flux of the normal component. A formula (without derivation) is given for the sum of all moments of force acting upon the unit length of the outer and inner surface of a thin-walled cylinder of the radius R. A formula

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MAMALADZE, Yu.G.; MATINYAN, S.G.

Comments on the damping of the oscillations of a disc in rotating helium II. Zhur. eksp. i teor. fiz. 38 no.1:184-187 Jan '60. (MIRA 14:9)

1. Institut fiziki AN Gruzinskoy SSR.
(Damping (Mechanics)) (Helium)

MAMALADZE, Yu.G. (Tbilisi); MATINYAN, S.G. (Tbilisi)

Hydrodynamics of the oscillations of a disk in a rotating liquid.
Prikl.mat.i mekh. 24 no.3:473-477 My-Je'60. (MIRA 13:10)
(Hydrodynamics)

height ℓ and unit area to the work of vortex formation on that area. The analogy between the quantities ρ_s ν_{vortex} and R_{vortex} with the corresponding quantities $\rho\nu = \eta$ and R for classical viscous hydrodynamics is thus complete. If we term "critical" that velocity at which vortex formation is energywise selfsupporting, then $(R_{vortex})_{crit.} = 2$. If we use similarity theory to develop relationships between the effective radius of a vortex b, the radius of a vortex line a, and the values of V_c and ℓ, we find that log $(b_c/a) =$ const and $V_c \ell =$ const, which, for $(R_{vortex})_{crit} = 2$, yields log $(b_c/a) =$ appx. 1, a figure which accords with Onsager's findings and with helium-film experiments by K. R. Atkins (Progr. in Low-Temp. Phys., v. II, Amsterdam, 1957, 105) but differs by a factor of 10 with H. E. Hall's findings in the far supercritical regime (Roy. Soc., Proc., v. A 242, 1957, 493). The problem of the characteristic length in oscillatory phenomena is discussed, and a vortex analog of the Strouhal number is introduced to create a suitable characteristic length, namely, $\ell = 2\nu_{vortex}/V$, which again yields a critical $R_{vortex} = 2$. Thanks are expressed to Prof. Andronikashvili for his stimulating interest. There are 9 English-language references only.

ASSOCIATION: None given.